



Senate

General Assembly

File No. 425

January Session, 2001

Substitute Senate Bill No. 1012

Senate, April 24, 2001

The Committee on Environment reported through SEN. WILLIAMS of the 29th Dist., Chairperson of the Committee on the part of the Senate, that the substitute bill ought to pass.

AN ACT CONCERNING NITROGEN REDUCTION IN LONG ISLAND SOUND.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

- 1 Section 1. (NEW) As used in sections 2 to 5, inclusive, of this act:
- 2 (1) "Equivalency factor" means a ratio of the unit response of
- 3 dissolved oxygen to nitrogen in Long Island Sound for each publicly-
- 4 owned treatment works based on the geographic location of the
- 5 specific publicly-owned treatment works' discharge point divided by
- 6 the unit response of the geographic area with the highest impact;
- 7 (2) "Equivalent nitrogen credit" means a nitrogen credit multiplied
- 8 by the equivalency factor;
- 9 (3) "Equivalent pounds" means the actual pounds of nitrogen
- 10 discharged by a publicly-owned treatment works multiplied by the
- 11 equivalency factor for that publicly-owned treatment works;

12 (4) "Individual waste load allocation" means that portion of the
13 state-wide waste load allocation apportioned to an individual publicly-
14 owned treatment works;

15 (5) "Nitrogen" means the total of ammonia nitrogen, organic
16 nitrogen, nitrite nitrogen and nitrate nitrogen;

17 (6) "Nitrogen Credit Advisory Board" means the board appointed
18 by the Commissioner of Environmental Protection pursuant to section
19 3 of this act;

20 (7) "Nitrogen credit exchange program" means the program within
21 the Department of Environmental Protection established pursuant to
22 section 4 of this act;

23 (8) "Nitrogen credit" means the difference between the annual total
24 nitrogen load specified for a publicly-owned treatment works in the
25 general permit for nitrogen discharges and the annual total nitrogen
26 load discharged by that publicly-owned treatment works expressed as
27 pounds of nitrogen per day;

28 (9) "Nonpoint source" means any source of nitrogen originating
29 from other than a readily discernable end of pipe source;

30 (10) "Publicly-owned treatment works" means a system used for the
31 collection, treatment or disposal of sewage from one or more parcels of
32 land and that discharges to the waters of the state and is owned by a
33 municipality or the state;

34 (11) "State-owned equivalent nitrogen credits" means the difference
35 between the annual state-wide waste load allocation established in the
36 total maximum daily load and the sum of the annual discharges for all
37 publicly-owned treatment works;

38 (12) "State-wide waste load allocation" means the maximum
39 allowable nitrogen load from publicly-owned treatment works into

40 Long Island Sound that will meet water quality standards as specified
41 in the total maximum daily load;

42 (13) "Total maximum daily load" means the total maximum daily
43 load analysis to achieve water quality standards for dissolved oxygen
44 in Long Island Sound, as established by the Department of
45 Environmental Protection and as approved by the United States
46 Environmental Protection Agency; and

47 (14) "Unit response" means the reaction of dissolved oxygen in Long
48 Island Sound to a change in nitrogen loading of 1.0 pound.

49 Sec. 2. (NEW) Notwithstanding any provision of section 22a-430 or
50 22a-430b of the general statutes and notwithstanding nitrogen limits
51 specified in individual discharge permits issued pursuant to said
52 section 22a-430, the Commissioner of Environmental Protection shall
53 issue a general permit specifying effluent limits for nitrogen in
54 accordance with the total maximum daily load. In order to meet water
55 quality standards, the commissioner may incorporate compliance
56 schedules into permits issued under this section and said sections
57 22a-430 and 22a-430b. The general permit shall establish effluent limits
58 for nitrogen and shall establish an annual compliance schedule for
59 nitrogen for each publicly-owned treatment works. Under the general
60 permit, the commissioner may require publicly-owned treatment
61 works to (1) meet effluent limits and other conditions for discharging
62 nitrogen to the waters of the state pursuant to their individual waste
63 load allocations, (2) comply with monitoring requirements as set forth
64 in the general permit, and (3) comply with any other requirements as
65 determined by the commissioner necessary to carry out the provisions
66 of this section. Publicly-owned treatment works may participate in the
67 nitrogen credit exchange program in order to comply with effluent
68 limits for nitrogen specified in the general permit.

69 Sec. 3. (NEW) (a) The Commissioner of Environmental Protection
70 shall establish a Nitrogen Credit Advisory Board to assist and advise

71 the commissioner in administering the nitrogen credit exchange
72 program. The board shall consist of the Commissioner of
73 Environmental Protection or the commissioner's designee, the
74 Secretary of the Office of Policy and Management or the secretary's
75 designee, the State Treasurer or the Treasurer's designee and five
76 public members to be appointed by the Commissioner of
77 Environmental Protection. The Commissioner of Environmental
78 Protection, in making such appointments, shall, to the extent possible,
79 create a balanced advisory board with regard to buyers and sellers of
80 credits, large and small municipalities and representatives from
81 different geographic regions of the state. The five public members shall
82 include an official of a major publicly-owned treatment works, a
83 municipal public works official, a representative from a municipality
84 that purchases nitrogen credits, a representative from a municipality
85 that sells nitrogen credits and three persons having experience in
86 either wastewater treatment, environmental law or finance. The
87 Commissioner of Environmental Protection shall make all such
88 appointments not later than August 1, 2001.

89 (b) The Commissioner of Environmental Protection, or the
90 commissioner's designee, shall serve as chairperson of the board and
91 shall schedule the first meeting of such board not later than September
92 1, 2001. A majority of the members shall constitute a quorum for the
93 transaction of business. The principal office of such board shall be the
94 office of the Commissioner of Environmental Protection. At its first
95 meeting, the board shall determine by lot which members shall serve
96 for one, two or three years, provided the terms of office of not more
97 than fifty per cent of the board shall expire in any one year. Thereafter,
98 each term of office shall be for three years. The board shall choose a
99 secretary by ballot from its membership.

100 (c) Not later than September thirtieth, annually, the board shall
101 submit to the joint standing committee of the General Assembly
102 having cognizance of matters relating to the environment its findings

103 that address the following:

104 (1) A summary of the nitrogen credit exchange program's progress
105 in achieving the total maximum daily load;

106 (2) The adequacy of the Clean Water Fund financing pursuant to
107 section 22a-477 of the general statutes, as amended by this act, to
108 support the nitrogen credit exchange program and the total maximum
109 daily load;

110 (3) Recommendations for changes to the program including, but not
111 limited to: (A) Exchanging nitrogen credits with entities outside the
112 state; (B) expanding the general permit for nitrogen discharges and the
113 nitrogen credit exchange program to include additional point and
114 nonpoint sources; and (C) exchange transactions executed outside of
115 the nitrogen credit exchange program; and

116 (4) Identification of any other issues that need to be resolved.

117 Sec. 4. (NEW) (a) The Commissioner of Environmental Protection
118 shall establish a nitrogen credit exchange program to assist in the
119 implementation of the total maximum daily load. The nitrogen credit
120 exchange program shall apply to all publicly-owned treatment works
121 included in the general permit issued pursuant to section 2 of this act.

122 (b) The commissioner, in consultation with the Nitrogen Credit
123 Advisory Board, shall:

124 (1) Establish a schedule and monitor all nitrogen removal
125 construction projects;

126 (2) Establish an equivalency factor for each publicly-owned
127 treatment works, which may be revised at the commissioner's
128 discretion consistent with the total maximum daily load. The
129 equivalency factor and any proposed revisions shall be made available
130 for public comment at least thirty days prior to being implemented in

131 the nitrogen credit exchange program;

132 (3) Establish the individual waste load allocation for each publicly-
133 owned treatment works utilizing the equivalency factors and taking
134 into consideration the schedule for nitrogen removal construction
135 projects;

136 (4) Monitor annual progress in meeting the fifteen-year
137 implementation schedule in the total maximum daily load;

138 (5) Propose modifications, as may be necessary, to the general
139 permit for nitrogen discharges;

140 (6) Establish the annual value of equivalent nitrogen credits giving
141 consideration to all relevant factors and circumstances including, but
142 not limited to: The equivalent pounds of nitrogen removed from all
143 municipal wastewater treatment facilities operating in this state; the
144 incremental capital costs attributable to the nitrogen removal portion
145 of each municipal wastewater treatment facility initiating operation in
146 this state over the preceding five years; the incremental operation and
147 maintenance costs attributable to the generation of equivalent nitrogen
148 credits by each municipal wastewater treatment facility initiating
149 operation in this state over the preceding five years; and
150 methodologies to appropriately weigh and integrate capital and
151 operation costs for this state's municipal wastewater treatment
152 facilities and to calculate a five-year rolling average for equivalent
153 nitrogen credits available for exchange for all municipal treatment
154 facilities operating in this state;

155 (7) Oversee and execute all equivalent nitrogen credit exchanges;

156 (8) Maintain a separate account of state-owned equivalent nitrogen
157 credits;

158 (9) Purchase all equivalent nitrogen credits created by publicly-
159 owned treatment works at the annually established value;

160 (10) Sell available state-owned equivalent nitrogen credits including
161 nitrogen credits purchased from publicly-owned treatment works at
162 the annually established value to enable publicly-owned treatment
163 works to meet nitrogen limits specified in the general permit for
164 nitrogen discharges;

165 (11) Whenever practicable, sell remaining state-owned equivalent
166 nitrogen credits to any other public or private entity;

167 (12) Establish an annual uniform transaction fee not to exceed five
168 per cent for each equivalent nitrogen credit transaction;

169 (13) Establish accounts of funds created from the purchase and sale
170 of equivalent nitrogen credits and the collection of transaction fees to
171 be used for administration of the nitrogen credit exchange program
172 and which may be used for nitrogen removal projects, habitat
173 restoration projects and research; and

174 (14) Establish any other policies or procedures the commissioner
175 may deem necessary to carry out the nitrogen credit exchange
176 program.

177 (c) (1) Not later than March thirty-first, annually, the commissioner
178 shall audit the performance of each publicly-owned treatment works
179 operating from January first to December thirty-first of the preceding
180 year and shall (A) determine the number of equivalent nitrogen credits
181 for sale and the number of equivalent nitrogen credits to be purchased,
182 (B) determine and publish the annual value of equivalent nitrogen
183 credits, and (C) notify each publicly-owned treatment works of their
184 equivalent nitrogen credit balance. A municipality may petition the
185 Nitrogen Credit Advisory Board, established pursuant to section 3 of
186 this act, to request that the commissioner hold a public hearing to
187 reevaluate the formula used in establishing the value of equivalent
188 nitrogen credits pursuant to this subsection. Upon a two-thirds vote of
189 the members of the board for such a hearing, the commissioner shall

190 conduct a public hearing and issue a ruling as to whether such formula
191 should stand or be revised.

192 (2) Not later than July thirty-first, annually, each publicly-owned
193 treatment works shall purchase equivalent nitrogen credits necessary
194 to meet its nitrogen limits. Such purchase shall be paid by certified
195 bank check or money order made payable to the "nitrogen credit
196 exchange program". The check or money order shall state on its face
197 "nitrogen credit purchase".

198 (3) Not later than August fourteenth, annually, the commissioner
199 shall purchase all available equivalent nitrogen credits.

200 Sec. 5. (NEW) The Commissioner of Environmental Protection may
201 audit the annual operating data of publicly-owned treatment works
202 participating in the nitrogen credit exchange program in order to
203 assess permit compliance. Publicly-owned treatment works that do not
204 meet permit limits through treatment or the purchase of credits shall
205 be subject to the enforcement provisions of chapter 446k of the general
206 statutes.

207 Sec. 6. The Commissioner of Environmental Protection may adopt
208 regulations, in accordance with chapter 54 of the general statutes, to
209 carry out the provisions of sections 2 to 5, inclusive, of this act.

210 Sec. 7. Subsection (h) of section 22a-477 of the general statutes is
211 repealed and the following is substituted in lieu thereof:

212 (h) Amounts in the water pollution control state account of the
213 Clean Water Fund shall be available: (1) To be invested by the
214 Treasurer of the state to earn interest on moneys in such account; (2)
215 for the commissioner to make grants to municipalities in the amounts
216 and in the manner set forth in a project funding agreement; (3) for the
217 commissioner to make loans to municipalities in amounts and in the
218 manner set forth in a project funding agreement for planning and

219 developing eligible projects prior to construction and permanent
220 financing; (4) for the commissioner to make loans to municipalities, for
221 terms not exceeding twenty years, for an eligible water quality project;
222 (5) for the commissioner to pay the costs of environmental studies and
223 surveys to determine water pollution control needs and priorities and
224 to pay the expenses of the department in administering the program;
225 (6) for the payment of costs for administration and management of the
226 Clean Water Fund; (7) provided such amounts are not required for the
227 purposes of such fund, for the Treasurer of the state to pay debt service
228 on bonds of the state issued to fund the Clean Water Fund, or for the
229 purchase or redemption of such bonds; (8) for the commissioner to
230 make grants to municipalities for the development and installation of
231 structural improvements to secondary clarifier operations including,
232 but not limited to, flow distribution mechanisms, baffle-type devices,
233 feed well design and sludge withdrawal mechanisms. Grants under
234 this subdivision shall be for one hundred per cent of the construction
235 cost and not more than three million dollars from the fund shall be
236 used for such grants; [and] (9) for the commissioner to pay the costs for
237 the establishment, administration and management of the nitrogen
238 credit exchange program described in section 4 of this act, including,
239 but not limited to, the purchase of equivalent nitrogen credits from
240 publicly-owned treatment works in the event that the account of state
241 funds established pursuant to section 4 of this act is exhausted; and
242 (10) for any other purpose of the Clean Water Fund and the program
243 relating thereto.

244 Sec. 8. This act shall take effect July 1, 2001.

ENV *Joint Favorable Subst.*

The following fiscal impact statement and bill analysis are prepared for the benefit of members of the General Assembly, solely for the purpose of information, summarization, and explanation, and do not represent the intent of the General Assembly or either House thereof for any purpose:

OFA Fiscal Note

State Impact: See Explanation Below

Affected Agencies: Department of Environmental Protection,
State Treasurer, Office of Policy and
Management

Municipal Impact: See Explanation Below

Explanation**State and Municipal Impact:**

Passage of this bill is anticipated to result in a savings to the state and municipalities due to the establishment of a nitrogen credit trading program by the Department of Environmental Protection (DEP) which would allow publicly owned treatment works (POTWs) to achieve their effluent discharge limits by buying available nitrogen credits generated by other facilities which discharge less from their allocation. Based on an analysis that was contracted for by DEP, the program is estimated to result in a total savings of \$200 million over 15 years to the Clean Water Fund and municipalities. This program is anticipated to allow for flexibility for various municipalities and allow for the most cost effective nitrogen removal construction projects to be built. The DEP will need an additional 1 employee (approximately \$50,000 in salary) for the administrative work associated with the program as well as auditing and monitoring the POTWs. Funding will

be provided through the transaction fees or the purchase and sale of credits within the established accounts and potentially the reprioritization of current Clean Water personnel if additional staffing is necessary. The bill also allows funds from the water pollution control account of the Clean Water Fund to be used for the program when the program account is exhausted. Initially, those needing credits will buy them first and the bank will use those funds to pay for excess credits. Any additional funds, if needed, to balance the account would come from the Clean Water Fund. The unallocated balance in the Clean Water Fund (GO bonds) as of March 30, 2001 is approximately \$95.8 million. Additional funds, in the amount of \$40 million (GO bonds) for both FY 02 and FY 03 are provided in sSB 1152.

Any increase in the workloads of the Office of Policy and Management or the Office of the State Treasurer due to membership on the Nitrogen Credit Management Board is anticipated to be minimal and handled within existing budgetary resources.

OLR Bill Analysis

sSB 1012

AN ACT CONCERNING NITROGEN REDUCTION IN LONG ISLAND SOUND.**SUMMARY:**

This bill requires the Department of Environmental Protection (DEP) to issue a general permit limiting the total amount of nitrogen discharged by municipal sewage treatment plants. The bill also requires DEP to set individual discharge limits for each plant, based on the total maximum daily load (TMDL) and each plant's location. The TMDL, established by DEP and approved by the U.S. Environmental Protection Agency (EPA), is the maximum amount of nitrogen that can be discharged into Long Island Sound without significantly impairing its water quality.

Plants can meet their discharge limit by purchasing credits through DEP from plants that have reduced their discharges below their permit levels under a program the bill creates.

The bill authorizes DEP to establish, oversee, and manage a nitrogen credit exchange program, and to create a Nitrogen Credit Advisory Board to assist and advise it. DEP must consult with the board about the program.

Nitrogen credits are created when a plant reduces its nitrogen discharges below the level the permit requires. DEP must adjust these credits (called equivalent nitrogen credits) to account for the relatively greater harm to Long Island Sound caused by nitrogen discharged from plants that are closer to the shoreline. In addition, the bill creates state-owned credits.

DEP must establish the value of the equivalent nitrogen credits annually. The bill allows municipalities to challenge the formula DEP uses to adjust the value of the credits.

The bill requires DEP, on an annual schedule, to purchase all available credits, and to make them available to plants that have not met their discharge levels. DEP may also sell the credits to other entities.

The bill authorizes DEP to collect a transaction fee for the credit sales and to use money from the Clean Water Fund for the program.

EFFECTIVE DATE: July 1, 2001

GENERAL PERMIT BASED ON TOTAL MAXIMUM DAILY LOAD

The federal Clean Water Act requires states with water bodies that do not meet federal water quality standards to develop a plan to bring them into compliance with the standards (33 USC 1313(d)). As part of the process, states must determine the TMDL so that the water body can meet the standards.

A federally required DEP analysis of water quality in the Sound calls for a significant reduction in nitrogen loads over a 15-year period (see BACKGROUND).

The bill requires DEP to establish a general permit limiting effluent discharge levels. These levels supersede existing general and individual discharge limits under existing permits. The bill also authorizes DEP to set compliance schedules in the general permit or existing individual discharge permits, based on reductions needed to achieve water quality standards.

The general permit limits must be based on the DEP analysis, approved by EPA, determining the total maximum load of nitrogen the Sound can accommodate daily and still achieve the dissolved oxygen standard. The general permit must establish an annual compliance schedule for each plant's nitrogen reduction. DEP may incorporate these schedules into existing permits. It may require plants to (1) meet the effluent limit or other conditions, (2) comply with the permit's monitoring requirements, and (3) comply with any other DEP requirements necessary for the general permit. It may propose necessary modifications to the general permit.

Plants may meet the general permit's effluent limits by participating in the nitrogen credit exchange program.

NITROGEN CREDIT EXCHANGE PROGRAM

The bill requires DEP to establish a nitrogen credit exchange program and requires it to consult with the Nitrogen Credit Advisory Board when establishing the program's components.

Setting Plant Limits

The amount of damage nitrogen discharged from a plant does to the Sound depends on the location of the plants. Plants near the shoreline pose the greatest threat.

DEP must account for the different impact of these discharges by setting an "equivalency factor" for each plant. It may revise the equivalency factor at the commissioner's discretion. It must make these equivalency factors, and any revisions, available for public comment at least 30 days before they are implemented.

DEP must use the equivalency factors to apportion the overall statewide limit among plants, and it must establish their individual discharge limits. It must consider scheduled nitrogen removal construction projects when setting individual limits.

A nitrogen credit is the difference between a plant's actual nitrogen discharge and the discharge required under the general permit, expressed in terms of pounds of nitrogen per day. Multiplying that nitrogen credit by the equivalency factor for that plant results in an equivalent nitrogen credit.

Valuing Nitrogen Credits

The bill requires DEP to establish the annual value of equivalent nitrogen credits each year so that they can be bought and sold as part of the credit exchange program. In establishing the value, DEP must consider such factors as:

1. the equivalent pounds of nitrogen removed from all of the state's plants;
2. the extent to which nitrogen removal increases the capital costs of each plant that began operating in the previous five years;

3. the added operational and maintenance costs attributable to generating equivalent nitrogen credits by each of these plants; and
4. appropriate methods of weighing and combining these costs, and calculating a five-year rolling average for equivalent nitrogen credits available for exchange for all such plants operating in the state.

A municipality may petition the Nitrogen Credit Advisory Board to reevaluate the formula used to establish the value of equivalent nitrogen credits. If two-thirds of the board members support the request, the commissioner must hold a public hearing and rule on whether the formula should be changed.

Establishing the Credit Exchange Program

The bill authorizes DEP, in consultation with the advisory board, to oversee and execute the exchange of all nitrogen credits. DEP must establish (1) an annual uniform transaction fee of up to 5%, and (2) accounts for the money created from the purchase and sale of credits and the transaction fees. DEP must use the accounts to administer the program, and for nitrogen removal projects, habitat restoration projects, and research. It may establish any other procedures necessary to carry out the program.

DEP must maintain a separate account of state-owned equivalent nitrogen credits. These represent the difference between the maximum allowable nitrogen discharge from all of the plants under the TMDL and their total actual discharge. DEP must purchase all equivalent nitrogen credits created by plants at the annual established value. It must sell available state-owned credits, including credits purchased from plants at the annually established value, so that plants can meet their specified nitrogen discharge limits. When practical, DEP must sell any remaining credits to other public or private entities.

The bill allows funds from the water pollution control account of the Clean Water Fund to be used for the program when the program account is exhausted.

DEP must (1) establish a schedule for and monitor all nitrogen removal

projects and (2) monitor the annual progress made in meeting the 15-year schedule for achieving the TMDL.

ANNUAL SCHEDULE

DEP must, by March 31 each year, audit the performance of all plants operating for the full previous calendar year in order to establish the value of equivalent nitrogen credits.

By March 31 each year, DEP must (1) determine the total number of equivalent nitrogen credits for sale and the number to be purchased, (2) determine and publish the annual value of equivalent nitrogen credits, and (3) notify each plant of its equivalent nitrogen credit balance.

Plants have until July 31 to purchase equivalent credits from DEP needed to meet their discharge limit. They must purchase the credits by sending a certified bank check or money order made payable to the Nitrogen Credit Exchange Program, stating on the check's face that it is for a "nitrogen credit purchase." DEP must sell the equivalent credits at the established value and the transaction fee.

By August 14 annually, DEP must purchase all available credits. Apparently, DEP will "settle accounts" with buyers and sellers at this time and retain any remaining credits.

Enforcement

The bill authorizes DEP to conduct compliance audits of the annual operating data for plants participating in the program. Plants that fail to meet their individual waste load allocations are subject to the existing statutory water pollution control enforcement provisions.

DEP Policies, Procedures, and Regulations

The bill authorizes the commissioner to establish other policies or procedures he deems necessary and to adopt regulations to carry out the program.

NITROGEN CREDIT ADVISORY BOARD

The bill establishes a Nitrogen Credit Advisory Board to assist and

advise DEP in administering the nitrogen credit exchange program. DEP must generally consult with the board, whose members must, as far as possible, represent a balance between buyers and sellers of credits, large and small municipalities, and different regions of the state.

Board Members

The board consists of the following members: (1) the commissioner or his designee, who will chair the board, (2) the secretary of the Office of Policy and Management or his designee, (3) the state treasurer or his designee, and (4) public members appointed by the commissioner.

The public members must include (1) an official of a major plant, (2) a municipal public works official, (3) a representative of a town that buys credits, (4) a representative of a town that sells credits, and (5) three persons having experience in either wastewater treatment, environmental law, or finance. The bill refers to five public members, but designates seven.

All appointments must be made by August 1, 2001. The board's principal office is at DEP. The commissioner must schedule the board's first meeting by September 1, 2001. At the first meeting members must draw lots to determine their initial terms of office. The initial terms may be for any combination of one, two, or three years provided no more than 50 percent of the board's terms of office expire in any one year. Subsequent terms are for three years. The board must elect a secretary. A majority of members must be present at a meeting to transact business.

Annual Report

The board must report to the Environment Committee by September 30 of each year. Its report must address:

1. the progress of the nitrogen credit exchange program;
2. the adequacy of the Clean Water Fund to support the program and the TMDL;
3. recommendations to change the program, including (a) allowing trades outside the state, (b) expanding the general permit and the program to include other point and nonpoint sources, and (c)

allowing trades outside the program; and

4. identification of other issues that need to be resolved.

NITROGEN IN WATER-BODIES

Nitrogen is a naturally occurring nutrient in water bodies. It is also a pollutant. Its sources include human and animal waste, farming and lawn-care fertilizers, and combustion exhaust.

Nitrogen from human activities may reach a water body from (1) discharge from a facility (such as a sewage treatment plant), known as a point source; (2) runoff after rain or snowmelt, known as non-point source; and (3) conversion from nitrogen in the air, known as deposition.

Excessive nitrogen in the Sound is a primary cause of "hypoxia," a condition in which there is too little dissolved oxygen in the water to sustain aquatic life. Hypoxia, which occurs primarily in the western half of the Sound, reduces the habitat available to important fish and shellfish species that live in the bottom waters of the Sound. Excess nitrogen causes hypoxia by fueling the growth of one-celled plants called algae. As the algae die, they sink to the bottom of the Sound and decompose, consuming oxygen in the process. The more algae there is, the greater the depletion of oxygen.

COMMITTEE ACTION

Environment Committee

Joint Favorable Substitute

Yea 28 Nay 0